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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,362	02/26/2004	Scott Powell	1875.4270001/JDE	3418

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STERNE, KESSLER, GOLDSTEIN & FOX, PLLC  
1100 NEW YORK AVENUE, NW  
WASHINGTON, DC 20005-3934

EXAMINER
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TRAN, KHAI

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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08/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/786,362

Applicant(s)

POWELL, SCOTT

Examiner

KHAI TRAN

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-18 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11, 15 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 8-10, 12-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. The amendment filed 5/4/2007 has been entered. Claims 1-21 are pending in this Office action.

### ***Response to Arguments***

2. Applicant's arguments filed 05/4/2007 have been fully considered but they are not persuasive.

Applicant states that Bhaskaran reference fails "a de-interleaver that de-interleaves the third signal and a possible error signal combined with the third signal to produce a fourth signal, such that any burst of the error signals is spread out" or "de-interleaving the third signal and a possible error signal combined with the third signal to produce a fourth signal" as respectively recited in independent claims 1 and 19.

In response to the Applicant's argument that Bhaskaran reference discloses in [0034) that a de-interleaver 209 reverse the interleaving operation of the interleaver 203, and an outer FEC decoder applies the appropriate error correction, scheme matching the FEC encoder 202. Therefore, the error can occur during the transmission (a channel 206). A possible error signal combined with the third signal (from the interleaver 203) is inherent in the channel 206 as taught by Bhaskaran reference.

### ***Claim Rejections - 35 USC § 102***

3. Claims 1, 5-6, 7, 11, 15, 19, 21 remain rejected under 35 U.S.C. 102(e) as being anticipated by Bhaskaran et al (US 2004/0128696 A1).

Regarding claim 1, Bhaskaran et al disclose a system comprising: a forward error correction encoder (see Figure 2, a FEC encoder 202) that encodes a first signal to

produce a second signal; an interleaver (203) for interleaving the second signal to produce a third signal; a transmission system (a channel 206) for transmitting the third signal; a de-interleaver (209) for de-interleaving the third signal and a possible error signal combined with the third signal to produce a fourth signal, such that any burst of the error signals is spread out; and a forward error signal decoder (210) that decodes the fourth signal to produce a fifth signal.

Regarding claims 5-6, Bhaskaran et al disclose wherein the interleaver forming the third signal using a sequential interleaving pattern and a random interleaving pattern (see [0007] and [0041]).

Regarding claim 7, Bhaskaran et al disclose the transmission system comprising first and second transceivers that transmit and receive the third signal and the possible error signal over one of wire or wireless transmission medium (see Fig. 2).

Regarding claim 11, Bhaskaran et al disclose the third and the possible error signal being transmitted over one of a wire or wireless transmission medium (see Figure 2).

Regarding claim 15, Bhaskaran et al disclose wherein the transmission system comprising an encoder (202) and decoder (210).

Claims 19, 21 are similar to claims 1 and 15. Therefore, claims 19, 21 are rejected under a similar rationale.

#### ***Claim Rejections - 35 USC § 103***

4. Claims 2-3 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Bhaskaran et al (US 2004/0128696 A1) in view of Hwang et al (US 2002/0196766 A1).

Regarding claims 2-3, Bhaskaran et al fail to disclose the interleaver comprising a multiplexer, the de-interleaver comprising a de-multiplexer.

Hwang et al disclose the interleaver comprising a multiplexer, the de-interleaver comprising a de-multiplexer (see [0076] and [0087]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform multiplexing and demultiplexing in the interleaver and deinterleaver as taught by Hwang into the teachings of Bhaskaran et al in order to minimize the influence of the narrow-band interference.

***Claim Rejections - 35 USC § 103***

5. Claims 4, and 19 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Bhaskaran et al in view of the admitted prior art.

Regarding claim 4, Bhaskaran et al fail to disclose a multi-dimension data in the first and second signals.

The admitted prior art discloses the first and second signal comprising multi-dimensional data (see [0005]). It would have been obvious to one having ordinary in the art at the time the invention was made to utilize the multi-dimensional data technique for transmitting a single high rate data stream as taught by the admitted prior art into the teachings of Bhaskaran et al. The motivation would transmit data at a high speed between first and second communications devices.

Claim 20 is similar to claim 4. Therefore, claim 20 is rejected under a similar rationale.

***Allowable Subject Matter***

6. Claims 16-18 are allowed.
7. Claims 8-10, 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: Bhaskaran et al and Hwang et al fail to disclose A system comprising: a two-stage multiplexing system; a two-stage interleaving system, wherein each stage of the interleaving system is positioned subsequent to a corresponding stage of the multiplexing system; a transmission system coupled between a second stage of the interleaving system and a first stage of a two-stage de-interleaving system; a two-stage de-multiplexing system, wherein each stage of the de-multiplexing system is positioned subsequent to a corresponding stage of the de-interleaving system.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAIR TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KHAIR TRAN  
Primary Examiner  
Art Unit 2611